Abstract Submitted
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Observation of dynamics in fusion of neutron-rich oxygen nuclei at above-barrier energies[1] SYLVIE HUDAN, ROMUALDO DE SOUZA, Indiana University Bloomington — The recent observation of heavy element nucleosynthesis in the merging of two neutron stars, underscores the importance of better understanding the fusion of neutron-rich nuclei. While the fusion of stable nuclei has been well studied for several decades, only recently have radioactive beam facilities made it possible to systematically investigate fusion for an isotopic chain of nuclei. Investigating the fusion of neutron-rich nuclei with an extended neutron density distribution can reveal whether fusion dynamics for neutron-rich nuclei differs significantly from that of beta stable nuclei. It also allows one to explore the influence of pairing at low density. To address this question the fusion excitation functions for ^{16,17,18}O + ^{12}C will be compared to that of ^{19}O + ^{12}C. The experimental results will be compared to both simple barrier penetration models as well as the predictions of a density constrained time-dependent Hartree-Fock model (DC-TDHF).

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